

## NOTES

THE Haarlem Society of Sciences resolved, some years ago, to award, biennially, a medal to the individual who, by his researches, discoveries, or inventions, during the previous twenty years, had, in the judgment of the society, distinguished himself in an exceptional manner in a particular branch of science. This year the medal was to be devoted to astronomy, and on the 18th inst. was awarded to Prof. Simon Newcomb. We believe the medal would have been awarded to Sir George Airy if the committee had felt themselves at liberty to embrace a period greater than twenty years past; but, according to the rules regulating the award, they are rigidly confined to the period stated.

MR. CARL BOCK, F.G.S., who has had considerable experience in the collection of shells and other specimens of natural history, is leaving England at the end of this week for Padang, in Sumatra, in order to explore and collect in the highlands of the interior of the island.

RECENT advices from Auckland state that Signor Beccari and Capt. D'Alberty, a nephew of the New Guinea explorer, were visiting the colony on their way to Europe, and that Signor Beccari had with him some 12,000 specimens of the flora and fauna of New Guinea.

IF Mr. Herbert Spencer remembers his Bible, an oft-quoted passage must have occurred to him on Sunday (appropriately)—“A prophet is not without honour save in his own country and among his own people.” On that day, in Paris, where he has been spending a few days, a semi-public dinner was given to the English philosopher by a number of his admirers, headed by the well-known publisher M. Germer-Baillière. Mr. Spencer, in replying to the toast of his health—and he actually replied to a toast, and that too in a style not much out of the common—hinted that he was better known and better appreciated in France than in England, where, so far as we know, he never appeared either on a public or semi-public occasion. A decidedly social evening seems to have been passed by the assembled *savants*, Mr. Spencer concluding his genial and complimentary reply by drinking to the peculiarly French sentiment—Brotherhood (*à la fraternité*).

M. BARDOUX has written to the Meteorological Society of France asking them to organise the congress of meteorology. The committee of this association have written to the Association Scientifique de France, and other societies, requesting them to appoint a number of their members to serve on the committee of organisation. The aeronauts are not pleased because no invitation has been directed to any of the aeronautical societies of Paris.

NORWITHSTANDING that M. Bardoux has published his decree on the meteorological organisation of France the great commission has held no sitting, and the list of presentations for the successor to M. Leverrier has not yet been deliberated upon. This singular delay is preventing the government from taking any step towards the realisation of the newly-established meteorological institution.

THE “Associations” are waking up once more and beginning to warn all whom it may concern to be ready for the great annual autumnal talk. So far as the British Association is concerned it has confined itself as yet to the usual preliminary advertisement and the private invitation circular intimating that this will be an Irish year—and no doubt Dublin will give a thoroughly Irish welcome—that the opening day is August 14, and that Dr. W. Spottiswoode is the President-Elect. Our American friends in this, as in some other things, are ahead of us, for already we have received the printed circular of arrangements for the twenty-seventh meeting of their Association,

which is to be opened at St. Louis a week after our own, on August 21, with Prof. O. C. Marsh as President. Any English men of science who are likely to be in the States about the time of the meeting and who would like to be present, should write to Prof. F. W. Putnam, Salem, Mass., the Permanent Secretary, who, we are sure, will gladly give all necessary information.

IT is stated on good authority that the Water and Woods Department of the French Exhibition will be preserved as a permanent museum, and re-erected in the Bois de Boulogne after the close of the Exhibition. All the specimens of woods exhibited by foreign nations will be purchased if not presented by their respective departments, and added to the intended museum. All the parts of the central building have been constructed so that they can be utilised for railway stations, large markets, &c., and will be sold accordingly. It is stated that the greater part has been already disposed of. We see that parliament has also authorised the purchase of suitable apparatus for the Conservatoire des Arts et Métiers. Although intended originally only to last up to October it is pretty certain the Exhibition will not close before November, according to the universal wish expressed by exhibitors and public.

WITH the month of June will be commenced the visits to the Exhibition of the pupils of the several municipal schools of Paris, under the guidance of their teachers, with free tickets given by the Government in accordance with the votes of the Chamber of Deputies.

A SINGULAR blunder for a city that has established an official committee on lightning conductors has been committed by the architect of the Paris Exhibition; iron conductors have been placed on the central building which is in solid iron. This extraordinary error was also committed in 1867. It shows how little the principles enunciated by Franklin are understood even by scientific people.

GIFFARD'S captive balloon is almost ready; the two steam-engines, 150 horse-power each, for working the monster cylinder, will be tried next week. The cylinder, which weighs 49,000 kilograms, has a length of 12 m. and a diameter of 175 cm.; it will revolve with a velocity of 30 turns per minute. The exact weight of the rope is 1,950 kilos. for a length of 600 m. It has been made at Angers in less than a week, and will be tried within a few days. Next week the apparatus for manufacturing hydrogen gas at a rate of 1,000 cubic m. per hour will be completed. The varnishing of the monster balloon began on Monday; the preliminary ascents and police inspection will take place from June 10 to 20, and the balloon is expected to be opened on the 22nd. The expense will probably exceed £20,000.

THE portrait of Harvey, which we give this week, properly belongs to the previous volume, and ought to be bound along with it. Prof. Huxley's notice of Harvey will be found at p. 417 of that volume.

THE *Sydney Mail* of March 30, we learn from *The Colonies*, contains a letter from a Mr. Severn, dated Newcastle (New South Wales), March 24, in which he gives details of a singular discovery he has made, whereby deaf people can be made to hear by means of the telephone. After describing a very simple telephone which he constructed out of a tin pot, the closed end of which he opened and tied over it a piece of parchment, passing a fine string through the centre and making a knot inside, he says:—“Make a loop in the string some three feet long, put this loop over the forehead of the listener (the deaf man), cause him to place the palms of his hands flat and hard against the ears, let the loop pass over the hands, and now this listener will hear the smallest whisper, let him be deaf or not. This fact may appear extraordinary; it is, nevertheless, true that a deaf man may

thus be made to hear the voice, music," &c. A diagram is published in the *Mail*, showing the working of the telephone as described.

THE cultivation of the opium poppy (*Papaver somniferum*), which has hitherto been exclusively confined to the east, bids fair to become thoroughly established and remunerative in Eastern Africa. Seeds of the best kinds have been imported from Malwa into Mozambique, where 50,000 acres of uncultivated State land have been granted to a company, with a capital of 178,000*l.*, for the purpose of cultivating and trading in opium. Besides the grant of land, the company also receives from the State "the exclusive right for twelve years to export opium free of duty through all the custom-houses of the province." It is satisfactory to learn that the poppy plants are thriving, and the fruits are reported to be larger than those produced in the best opium districts of India.

A RUSSIAN medical paper draws attention to *Sarracenia purpurea* as a remedy for gout, administered in the form of a powder in the proportion of one or two teaspoonfuls morning and evening.

THE thirty-second meeting of German philologists and pedagogues will take place at Gera at the end of September.

HERR FERDINAND NOLL, of Brandenburg, has presented to the International Postal Congress, now sitting at Paris, the drawings and descriptive plans of a decimal clock as well as two models of the clock itself. Its object, as its name implies is to introduce a division of time on the decimal system in accordance with that already in use for measures, weights, and moneys. Herr Noll therefore divides his dials into twenty hours and gives 100 minutes to the hour, each minute having fifty seconds, and each second fifty "tertien." Dr. Forster, the Director of the Berlin Observatory, gave a very favourable opinion of the invention when submitted to him two or three years since.

A FRENCH agricultural paper announces the discovery of an extremely simple and cheap means to protect houses from being struck by lightning. This consists merely in bundles of straw attached to sticks or broom-handles and placed on the roofs of houses in an upright position. The first trials of this simple apparatus were made at Tarbes (Hautes Pyrenées) by some intelligent agriculturists, and the results were so satisfactory that soon afterwards eighteen communes of the Tarbes district provided all their houses with these bundles of straw, and there have been no accidents from lightning since in the district.

THE Emperor of Austria has conferred the Cross of the Order of Francis Joseph upon the two well-known African travellers, Drs. Georg Schweinfurth and Gerhard Rohlfs.

THE large botanical library left by the late Prof. A. Braun, formerly director of the Berlin Botanical Gardens, is now being sold by Messrs. List and Francke, of Leipzig.

OUR readers will be glad to learn that Sir William Thomson and Prof. Tait have nearly completed for publication the first part of the new edition of their work on natural philosophy, which will be brought out very shortly by the Cambridge University Press.

No less than twelve separate subterranean shocks are reported from Ancona as having occurred between May 9 and 12.

THE Government of Uruguay intends to construct a railway which will unite Uruguay with the Province of Rio Grande do Sul, in which many thousands of colonists are settled. The line is to begin on the right bank of the Quarahim River, and is to extend as far as the town of Uruguayana. On the Quarahim River this railway will join the line in course of construction between Salto and Santa Rosa, which is already finished and in use as far as Jacuhi (some 300 miles), and which in turn corresponds with the line between Salto and Fray Bentos, where the great Saladeros (slaughter-houses) of the "Liebig Company"

are situated, at which over 1,000 head of cattle are killed daily to make the well-known "Liebig Extract of Meat."

MR. J. M. WILSON, of Rugby, has in the press a treatise on geometry written to correspond with the Syllabus of the Geometrical Association. The work will be published by Messrs. Macmillan and Co.

MESSRS. MACMILLAN AND CO. are preparing for publication a treatise on the nature and origin of coal and the extent of the supply in this country, written by the Professors of the Yorkshire College of Science, Leeds. The authors propose to sketch out the state of the country at the time when coal was coming into being and the processes by which it was formed; next to deal with the present, and give an account of the methods of working coal and some of the uses to which it is now being put; lastly, to endeavour to forecast the future and speak of the probable duration of our coal supply. The work will be edited by Prof. T. E. Thorpe, F.R.S. In it Prof. Rücker will treat the subject from the physicist's point of view; Prof. Miall will discuss its natural history; Prof. Green will take the geology of the question; Prof. Thorpe the chemistry; and Prof. Marshall will write on the economics of coal.

IN a recent paper in *L'Aéronaute*, Col. Laussedat gives the results of experiments made by a Commission appointed by the French Minister of War. For Captive Balloons it is absolutely necessary to employ the best silk and cordage, which, with the least weight, offers the greatest guarantee of durability. After much research a special varnish has been found which renders the aërostat impermeable to gas. Instead of numerous ropes held by men as in former military ballooning, a single cable has been adopted to work by a simple but secure capstan. Capt. Renard has discovered a rapid and economical new process of manufacturing hydrogen. For Postal Balloons Capt. Renard also has devised a secure and easily-worked valve. A liquid instead of a solid ballast has been resolved on, and a fluid is being sought which will not congeal in the low temperatures of the upper atmosphere. The valve and the ballast may work automatically and maintain the balloon at any given height. Among the methods of stopping the balloon experimented on are the javelin anchor of Meusnier and a sort of iron arrow devised by Capt. De la Haye. For Directable Balloons the principles which guided Dupuy de Lôme have, for the most part, been adopted by the Commission. That experimenter found that with an engine of eight horse-power turning a screw he could deviate from the direction of the wind by a considerable angle, with ordinary winds, and even travel, with reference to the earth, in all directions which it would be wished to follow. The Commission, however, instead of placing the screw in the car, at a great distance from the point of application of resistance of the air, have constructed the balloon so that the screw may work in the very centre of the aërostat.

THOSE familiar with the treasures of the Bibliothèque Nationale in Paris will appreciate the importance of a law lately laid before the French Chamber by the Minister of Public Instruction, providing for the demolition of all buildings adjoining the library, in order to insure its complete protection from danger by fire. The great building will in the future be entirely surrounded by an open space laid out in gardens and walks.

THE Paris Jardin d'Acclimatation has just received from the Seychelles Islands three of the largest tortoises known. The heaviest weighs 187 kilogrammes and is 1½ metre in diameter.

AT the meeting of the Institution of Surveyors on the 13th May, Mr. R. W. Peregrine Birch read an important paper on the use of sewage by farmers. Mr. Birch has collected a considerable quantity of statistics on this unsavoury but important subject, from which the following conclusions are



drawn:—1st. That there are upwards of 100 owners and occupiers of land in Great Britain who use sewage for the sake alone of what they can get out of it by agricultural means. 2nd. That of this number more than sixty are tenant farmers who continue to use it although they have, annually at least, the option of ceasing to do so. 3rd. That of the latter number about five-sixths, and of the total number about three-fourths, actually pay money for the use of the sewage, either in the form of out-fall rent, unquestionable increase of land rent, or the price of occasional dressings. Nearly 4,000 acres of sewage land have been referred to, and these are in the hands of more than a hundred distinct occupiers. These occupiers may be divided into three classes:—Those who have to cleanse a certain quantity of sewage on a certain area of land; those who may take, or leave alone, as much of a town's sewage as they please; and those who may take, or leave alone, what sewage can be spared by others having a prior right. The first class occupies 1,670 acres of sewage land, and deals with the sewage of twenty distinct sanitary districts, or a population of about 200,000 on as many as twenty-one different farms. Mr. Birch's paper will be published as a pamphlet by Messrs. Spon.

AMONG the novelties in the German book trade for May, we notice the following scientific works:—"Teleologie und Darwinismus," Dr. Kalischer (Berlin); "Gedanken über die Teleologie in der Natur," v. Bärenbach (Berlin); "Reisebriefe aus Kordofan und Dar-Fur," Dr. F. Pfund (Hamburg); "Die allgemeinsten chemischen Formeln," Prof. C. Willgerodt (Heidelberg); "Der Sternhaufen  $\chi$  Persei, beobachtet in der Leipziger Sternwarte von 1867-70," H. C. Vogel (Leipzig); "Die Verbreitung der Atmosphäre," M. Thiesen (Berlin); "Aus der Physik des Luftmeers," G. Münter (Herford); "Praxis der Naturgeschichte botanische, zoologische, und Akklimatisationsgärten, Aquarien, &c.," P. L. Martin (Weimar); "Atlas cœlestis eclipticus viii.," E. Heis (Cologne); "Die Fauna des Graptolithen-Gesteines," K. Haupt (Görlitz); "Bericht über die Beobachtung des Venus-Durchgangs vom 8ten December in Luxor," A. Auwers (Berlin); "Theorie der Wärme," translated from Prof. J. C. Maxwell by F. Neesen; "Das Nervensystem &c., der Medusen," O. and R. Hertwig (Leipzig); "Journal des Museums Godeffroy—A. Garret's Fische der Südsee" (Hamburg); "Fungi italicæ authographice delineati," P. A. Saccardo (Berlin). The three last are very expensive works.

THE additions to the Zoological Society's Gardens during the past week include three Common Rheas (*Rhea americana*) from South America, presented by Mr. Frank Parish; four Water Ouzels (*Cinclus aquaticus*), British, presented by Mr. R. J. L. Price; a Hairy Tapir (*Tapirus roulini*) from Columbia, two Great-Billed Rheas (*Rhea macrorhyncha*), two Sulphury Tyrants (*Pitangus sulphuratus*) from South America, received in exchange; two Chimpanzees (*Troglodytes niger*) from West Africa, deposited; two Bar-headed Geese (*Anser indicus*) from India, purchased; a Great Kangaroo (*Macropus giganteus*), two Wild Boars (*Sus scrofa*), two Wild Cats (*Felis catus*), born in the Gardens; two Geoffroy's Doves (*Peristera geoffroyi*), seven Chilian Pintails (*Dafila spinicauda*), a Yellow-Legged Herring Gull (*Larus leucopus*), bred in the Gardens.

### THE FRENCH METEOROLOGICAL SERVICE

WE learn that M. Mascart has been appointed head of the meteorological bureau. He is professor in the Collège de France, his special subjects being light and electricity. He is author of a work in two volumes, on static electricity.

Last week we gave a brief sketch of the new organisation of the French meteorological service by the government, and this week we are able to publish a translation of the decree,

from which it will be seen how much alive the French government is to the national importance of a complete meteorological service. How Article 2, referring to "Titular Meteorologists," "Adjoint Meteorologists," and "Assistant Meteorologists," must surprise our "Meteorological" Council! In France they actually insist upon meteorologists to do meteorological work and to advise upon meteorological matters.

Article 1.—The meteorological division of the Paris Observatory forms a distinct service, which takes the title of "Bureau Central Météorologique." This service comprises the study of the movements of the atmosphere, meteorological advertisements to the ports and to agriculture, the organisation of the meteorological observations, and of the regional or departmental commissions, the publication of their works, and the whole of the researches on meteorology or on climatology.

2. The meteorological service of France comprises titular meteorologists, *adjoint* meteorologists, and assistant meteorologists. The salary of the titular meteorologists varies from 3,000 to 10,000 francs. The *adjoint* meteorologists are divided into three classes, whose salaries vary from 2,500 to 5,000 francs. The assistant meteorologists are divided into two classes, whose salaries vary from 1,500 to 2,000 francs. This staff is distributed among the central bureau and the regional or departmental observatories, in proportion to the needs of these establishments.

3. The scientific staff of the central bureau comprises a titular meteorologist acting as director, two titular meteorologists placed under him, *adjoint* meteorologists, and assistant meteorologists. One of the *adjoint* or assistant meteorologists acts as secretary of the central bureau.

4. The director is charged with the general service of the establishment, the correspondence, the presentation to the minister of the proposed annual budget, the meteorological service, and a detailed account of the yearly expenses. He ought to secure the co-ordination and execution of the works which demand the concurrence of the different services placed under his orders, and see to the regularity of the publications. No order may be given without his authorisation.

5. The scientific works are divided as follows:—(1) Service of advertisements to the ports and to agriculture. (2) Service of the general movements of the atmosphere. (3) Service of climatology and of inspections. Each of the chiefs of the service remits monthly to the director a summary report on the progress of the works, and brings directly before the committee, instituted in the following article, the scientific questions of the service.

6. The heads of the service meet each month, on a fixed day, under the presidency of the director. This committee may hold extraordinary meetings at the instance of the director.

7. The titular meteorologists and the director are nominated by decree, on the proposition of the minister, and after the advice of the council, to be spoken of afterwards. The *adjoint* and assistant meteorologists are appointed by orders after advice of the same council.

8. The heads of the regional meteorological observatories are placed under the authority of the director of the central bureau. Each of these officials addresses to the central bureau, under cover of the minister, the observations and works of his establishment. He proposes to the council, through the director of the central bureau, the advancement of the meteorologists under his orders.

9. The meteorological observatories and stations of every order will be visited annually by the meteorologist of the central bureau charged with the service of climatology and inspections. They may also be visited by the director of the bureau or by a member of the council appointed for that purpose. In cases where the departments or towns contribute to the expenses of a meteorological observatory, the inspection will take place in company with the delegate of the general or municipal council interested.

10. There is established beside the central meteorological bureau, a council composed of (1) A representative of each of the Ministries of Agriculture and Commerce, of Public Works, of War, Marine, Foreign and Home Affairs and of the Administration of Telegraph Lines; (2) Two delegates from the Ministry of Public Instruction; (3) Two members of the Academy of Sciences; (4) The director of the central bureau. The heads of the special service of the bureau are admitted to the council, with a consultative voice for questions which interest them. The members of the council are appointed for three years, by decree, on the proposal of the Ministry of Public Instruction.